

In re Patent Application of:
CHARLES CARPENTER
Serial No. **09/864,918**
Filing Date: **5/24/2001**

In the Claims:

1. (currently amended) A method for manufacturing individual surface acoustic wave (SAW) devices, the method comprising the steps of:

forming a unitary array of a material having opposing first and second surfaces and ~~plural~~ a plurality of spaced cavities extending into the array from the first surface, each ~~cavity dimensioned to receive a SAW die therein;~~

forming a recess ~~at cavity selected cavities~~ from the first surface around selected cavities, each recess dimensioned to receive a lid within the recess;

providing at ~~last~~ least two conductive paths from ~~the interior of~~ within each selected cavity to a at least one of the first and second surfaces of the array;

inserting and attaching a SAW die face down, in a flip-chip arrangement, into each at least some of a the plurality of the selected cavities, each SAW die having conductive means electrically contacting the at least two conductive paths within the ~~interior of the corresponding cavity after insertion;~~

sealing ^{the} a lid in the recess over each the inserted SAW die; and then

separating ^{the} the array into individual SAW devices along separation lines between adjacent cavities.

2. (original) The method recited in Claim 1, further comprising the step of maintaining spacing between adjacent cavities during the separation step by applying tape means over the sealed lids and the first surface.

Claims 3 - 5 (Cancelled)

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6. (currently amended) The method recited in Claim 1, wherein the lid sealing step comprises the steps of:

placing a the lid over each cavity at least some of the plurality of spaced cavities;
placing a sealing material about ~~the~~ a periphery of each lid; and then
treating the ~~package array-lids combination~~ array having the lids thereon so as to seal each lid with using the sealing material.

7. (currently amended) The method recited in Claim 6, wherein the treating step comprises heating ~~the package array-lids combination~~ the array to effectuate sealing of the lids.

8. (original) The method recited in Claim 7, wherein the sealing material comprises a solder.

9. (original) The method recited in Claim 6, wherein the treating step comprises the step of curing the sealing material.

10. (original) The method recited in Claim 9, wherein the sealing material comprises a resin.

11. (previously presented) The method recited in Claim 1, further comprising the steps of:

placing a continuous tape across the first surface and the sealed lids prior to the separating step;

undertaking the separating step from the second surface while maintaining continuity of the tape across the first surface; and then

removing the individual components from the tape.

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12. (previously presented) The method recited in Claim 1, further comprising the step of forming the unitary array from a non-conductive material.

13. (previously presented) The method recited in Claim 12, wherein the unitary array comprises a ceramic.

Claim 14 (cancelled)

15. (previously presented) The method recited in Claim 1, wherein the lid sealing step comprises the step of hermetically sealing the cavity from an ambient environment.

Claims 16 - 18 (cancelled)

19. (currently amended) An assembly for manufacturing individual surface acoustic wave (SAW) devices comprising:

a unitary array of a nonconductive material having opposing first and second surfaces and ~~plural~~ a plurality of spaced cavities extending into the array from the first surface, ~~a plurality of the cavities having a SAW die inserted therein;~~

a SAW die carried face down, in a flip-chip arrangement, within at least some of the plurality of spaced cavities;

a recess at each cavity formed around selected cavities extending from the first surface, each recess dimensioned to receive a lid within the recess;

~~means providing~~ at least two electrically conductive paths from the SAW die within each selected cavity to an outer at least one of the first and second surfaces of the array;

a lid sealed in each recess of the selected cavities over an the inserted SAW die

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~~and the corresponding cavity; and~~

wherein the array ~~may be~~ is separated along separation lines between adjacent cavities into to form individual SAW devices therefrom along separation lines between adjacent cavities.

20. (original) The assembly recited in Claim 19, wherein each recess has a dimension greater than that of the corresponding cavity in order to form an area of overlap, and wherein the lid sealed in each recess engages the area of overlap.
